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Geospatial information for sustainable development

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Note by the Secretariat

Summary

The present paper contains the report jointly prepared by the Secretariat and the Working Group on Geospatial Information of the Inter-Agency and Expert Group on Sustainable Development Goal Indicators for consideration by the Committee of Experts on Global Geospatial Information Management.

At its eighth session, held in New York from 1 to 3 August 2018, the Committee of Experts adopted decision 8/110, in which it supported the revised workplan of the Working Group for the biennium 2018–2019. The Committee acknowledged that geospatial information and Earth observations were not yet sufficiently leveraged in statistical production processes and requested that the Working Group continue to develop and provide expert advice and guidance on the application of geospatial information to achieve national development priorities and the Sustainable Development Goals. In this present report, efforts are discussed to develop and provide guidance on data disaggregation by geographic location, the aggregation of geocoded unit-level data and approaches to leverage production-ready Earth observation time series data sets made available by space agencies, for the production of indicators. The report also includes a discussion of the main outcomes of the fifth expert meeting of the Working Group, held in Nairobi in December 2018 and which included an international seminar on geospatial information for sustainable development. In addition, the report includes a discussion of the efforts and progress made to ensure that the contribution of the global geospatial information community to the implementation of the 2030 Agenda remains rigorous and relevant, and provides an overview of planned activities for the coming year.

* E/C.20/2020/1

I. Introduction

1. The Secretary-General's report on progress towards the Sustainable Development Goals for the 2019 session of the High-level political forum on sustainable development, convened under the auspices of the Economic and Social Council (ECOSOC), identified a series of systemic gaps in the overall response to the 2030 Agenda and called for specific actions to fill them. These include placing special focus on the most vulnerable to ensure that as countries progress, they leave no one behind; ensuring adequate and well-directed financing; strengthening institutions and making them more effective and inclusive; bolstering local action to accelerate implementation; strengthening economies and building resilience; strengthening collection, access and effective use of data for the Goals; and harnessing science, technology and innovation with a greater focus on digital transformation for sustainable development.[1] The Secretary-General's report further noted that "for more than half of the global indicators, data are not regularly collected by most of the countries or there is no established methodology to measure them. This has a negative impact on the ability to fully understand Sustainable Development Goals progress and challenges".[2]

2. The Sustainable Development Goals Report 2019[3] reviews progress in the fourth year of implementation of the 2030 Agenda for Sustainable Development. The Report uses the latest available data to track global progress of the 17 Goals. A global indicator framework for the Sustainable Development Goals (SDGs) developed by the Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs), and adopted by the General Assembly[4], is used to review progress at the global level. This 2019 Report highlights that a much deeper, faster and more ambitious response is needed to unleash the social and economic transformation needed to achieve the SDGs, and that "quality data are vital for governments, development partners, international organizations, civil society, the private sector and the general public to make informed decisions and to ensure an accurate review of the implementation of the 2030 Agenda". The Report reiterates that "new data sources and technologies for data collection and for the integration of various data sources will need to be explored, including through partnerships with civil society, the private sector and academia. The integration of geospatial information and statistical data will be particularly important for the production of several indicators."[5]

3. The Committee of Experts has a vital role to play in harnessing the data, science, technology and innovation – digital transformation – required to achieve the implementation of the SDGs. This was recognized by ECOSOC in July 2016, noting that "the Committee is well placed to continue to contribute to the work of the United Nations, especially in the context of efforts to assist Member States in implementing the 2030 Agenda for Sustainable Development, the Sendai Framework for Disaster Risk Reduction 2015–2030, the Paris Agreement on climate change and the SIDS Accelerated Modalities of Action (SAMOA) Pathway" and stressed "the need to strengthen the coordination and coherence of global geospatial information management, in capacity-building, norm-setting, data collection, data dissemination and data sharing, among others, through appropriate coordination mechanisms".[6]

4. At its fifth session in August 2015, the Committee of Experts considered its activities related to sustainable development and the post-2015 development agenda. In adopting decision 5/101, the Committee committed to working closely with the statistical community, at both the national and global levels, by providing inputs into the processes to develop the global indicator framework under the auspices of the IAEG-SDGs, since many Goals have a

1 E/2019/68, para. 18
2 E/2019/68, para. 21
3 https://unstats.un.org/sdgs/report/2019/The-Sustainable-Development-Goals-Report-2019.pdf
4 Adopted on 6 July 2017, Resolution 71/313, annex
5 Sustainable Development Goals Report 2019, page 58
6 E/RES/2016/27

geospatial dimension, and agreed to set up a small task team to assist in developing the inputs into the global indicator framework, building on existing work and ongoing working mechanisms and taking into account the importance of standards in this context.

5. At its sixth session in August 2016, the Committee of Experts adopted decision 6/109, in which the Committee welcomed the establishment of the Working Group on Geospatial Information under the auspices of the IAEG-SDGs and supported the terms of reference and composition of the Working Group. The Committee further decided that the task team on SDG indicators, having fulfilled its short-term aims and objectives, be disbanded and shall focus its activities related to sustainable development and the 2030 Agenda through the efforts of the newly formed Working Group.

6. At its seventh session in August 2017, the Committee of Experts adopted decision 7/109, in which the Committee commended the Working Group for having completed its review and analysis of the global indicator framework through a “geographic location” lens. The Committee also recognized that the combined geospatial and statistical expertise of the Working Group positioned it appropriately to facilitate and support a “data ecosystem” that leveraged an accessible, integrative and interoperable local to-global information system for measuring and monitoring the Sustainable Development Goals and tracking annual progress.

7. At its eighth session in August 2018, the Committee of Experts adopted decision 8/110, in which it noted the activities and progress made to ensure that the contribution of the global geospatial information community to the 2030 Agenda for Sustainable Development remained relevant and rigorous, made the best possible use of existing initiatives, avoided duplication of efforts and was country-owned and country-led. The Committee also supported the revised workplan of the Working Group with the focus on developing and providing guidance on the disaggregation of statistical data by geographic location and the aggregation of geocoded unit-level data, and on appropriate approaches to leveraging ‘production-ready’ Earth observations time series data made available by space agencies.

8. A formal meeting of the Working Group was convened over two days on 5 and 8 December 2018 in Nairobi, Kenya, and hosted by the Global Urban Observatory/Data and Statistics Unit of the United Nations Human Settlement Programme (UN-Habitat). This fifth meeting was attended by 24 participants, 14 of whom are members and invited experts on the Working Group together with 10 other invited experts, presenters, and observers from international organizations and the United Nations system.

9. In conjunction with the fifth meeting of the Working Group, the Secretariat, with the support of the Global Urban Observatory/Data and Statistics Unit of UN-Habitat, organized the International Seminar on United Nations Global Geospatial Information Management with the theme "Geospatial information for sustainable development"[7]. Attended by 56 participants from 22 countries from all geographic regions, the International Seminar allowed members of the Working Group, together with national, regional and international experts, to engage and exchange knowledge, initiatives and experiences in the implementation of the 2030 Agenda and national development priorities. A key sub-theme focus revolved around the data demands for the SDGs - statistical, geospatial and other data; disaggregation by geographic location; and "production-ready" satellite and other observations time series for the global indicator framework.

10. This present report provides information and updates to the Committee of Experts on the progress and challenges towards the application of geospatial information and Earth observations in statistical production processes to achieve national development priorities and the SDGs. The Committee is invited to take note of the report and express its views on the way forward. Points for discussion and decision are provided in paragraph 34.

[7] http://ggim.un.org/meetings/2018-International-Seminar-Kenya/

II. Recent events and activities regarding the Working Group on Geospatial Information (WGGI) of the IAEG-SDGs

11. The Working Group provided a report on its activities and progress to the IAEG-SDGS at its eighth meeting in Stockholm, Sweden from 5-8 November 2018[8], and its ninth meeting in Beirut, Lebanon from 25-28 March 2019.

12. In its report to the 50th session of the Statistical Commission in March 2019, the IAEG-SDGs expressed the concern that the Group (IAEG-SDGs) "was not sufficiently connected to the work of the Working Group and that there must be an increase in interaction with the statistical community."[9] The concerns suggest that the Working Group has not been able to adequately inform and communicate how it is able to provide expertise, advice, and strategic guidance to the IAEG-SDGs and the wider statistical community on how geospatial information, Earth observations and other new data sources can reliably and consistently contribute to the production of indicators.

13. In its report to the IAEG-SDGs at its ninth meeting in Beirut, apart from reporting on its activities and progress[10], opined that the objectives and remaining tasks before the Working Group would be better served by a 'refreshed' group of members, including the membership of the IAEG-SDGs, that will increase its "interaction with the statistical community" and work towards providing "expertise and advice to the IAEG-SDGs and the larger statistical community", as in the Working Group's terms of reference.[11] The recommendation to include an increased membership of the IAEG-SDGs on the Working Group was welcomed.

14. The IAEG-SDGs, at its ninth meeting in Beirut, decided to prepare specific guidelines and instructions for the Working Group and suggests the Working Group to revise its terms of reference, memberships and work programme.[12]

15. The co-Chairs of the Working Group have initiated actions to revise the terms of reference, to refresh its membership, to include increased membership from the IAEG-SDGs and recalibrate its work programme to closely coordinate and work with the IAEG-SDGs and the larger statistical community, regularly reporting to the IAEG-SDGs, and subsequently to the Committee of Experts and Statistical Commission when appropriate.

16. The co-Chairs of the Working Group organized an online meeting with members of the IAEG-SDGs and the Secretariat to discuss how to move forward with the specific requests on 28 May 2019. As a result of this meeting: 1) the IAEG-SDGs have revised the Working Group's terms of reference and provided recommendations which are now being revised by the Working Group; and 2) the co-Chairs of the Working Group have initiated conversations to revise its membership, considering the newly defined membership of the IAEG-SDGs.

8 https://unstats.un.org/sdgs/files/meetings/iaeg-sdgs-meeting-08/3.2%20Geospatial%20Information%20Working%20Group%20Update.pdf

9 E/CN.3/2019/2, para. 23

10 https://unstats.un.org/sdgs/files/meetings/iaeg-sdgs-meeting-09/9th%20IAEG-SDGs_Report%20of%20WG-Geospatial%20Information.pdf

11 https://unstats.un.org/sdgs/files/meetings/iaeg-sdgs-meeting-09/9th%20IAEG-SDGs_Report%20of%20WG-Geospatial%20Information.pdf

12 https://unstats.un.org/sdgs/files/meetings/iaeg-sdgs-meeting-09/9th%20IAEG-SDG%20Meeting%20Report.pdf

Fifth meeting of the Working Group

17. The fifth meeting allowed the Working Group to clarify and prioritize activities including its two tasks addressing: i) disaggregation by geographic location; and ii) application of 'production-ready' satellite-based observations data for the production of indicators. The Working Group considered and reviewed options on developing and providing guidance to the IAEG-SDGs on the role of National Statistical Offices in considering and applying geospatial information and Earth observations primarily to contribute to and validate data as part of official statistics.

18. Within the two days, the Working Group considered 18 presentations that provided helpful information and context that allowed for in-depth discussions and deliberations. The Working Group took note of, and viewed positively, the possibility of changes to its membership with the impending membership rotation exercise at the IAEG-SDGs. The meeting was successfully concluded with agreed execution plans to continue addressing the work and tasks before the Working Group and with a reminder that much needed to be done.

Task streams

19. Task stream 1: Disaggregation by geographical location and aggregation of geocoded unit-level, co-led by Chile and China, sought to identify and develop good practices while documenting methodologies on geospatial disaggregation and aggregation for supporting the SDGs. At the meeting, the task stream was requested to focus on 'solutions' and to provide general guidance to disaggregate data by geographic location. The task stream noted that a better understanding of what is 'disaggregation by geographic location' would be helpful. It was observed that some form of location-based disaggregation included rural and urban, cities, informal settlements, built-up areas, open spaces for public use, places of incidence or occurrence.

20. Task stream 2: Availability and application of 'production ready' satellite-based observations data for the production of indicators, co-led by Colombia and Sweden, aimed to build broader understanding on the application of satellite-based observations data, technologies and tools for the production of indicators. The task stream sought to develop expert advice, guidance and recommendations for the IAEG-SDGs and document national experiences and good practices including case studies. The need for capacity development was highlighted and whether there needs to be a plan to develop the capacity of the statistical community in this area.

Outputs

21. The Working Group has produced two papers which can be referenced to provide guidance and good practices regarding the opportunity and potential of geospatial information to produce indicators. These papers were developed through a process of engagement, consultation and review within the Working Group, and both papers complement one another.

(a) The paper *Global and Complementary (Non-authoritative) Geospatial Data for SDGs: Role and Utilisation*[13] promoted the understanding, contribution and possible utilization of global, new and complementary data for the SDGs, particularly in situations where authoritative geospatial data may not be available, or to supplement existing data.

(b) The paper *Specifications of land cover datasets for SDG monitoring*[14] provided information on the Earth observations contribution to the SDGs with a focus on land

13 http://ggim.un.org/documents/Report_Global_and_Complementary_Geospatial_Data_for_SDGs.pdf
14 http://ggim.un.org/documents/Paper_Land_cover_datasets_for_SDGs.pdf

cover datasets. Some of the currently available (free and open data) land cover datasets which may be applied to the production of indicators were listed in its appendix. These datasets may cover a number of different time frames and spatial resolutions, and noted that generally, both the spatial and temporal resolution of these datasets are improving, with a number of annual or decadal 30m products being available, which provides a promising future for the use of these products for the SDGs.

International Seminar

22. The International Seminar with the theme "Geospatial information for sustainable development" provided a forum within a multi-actor multi-stakeholder setting for the geospatial and statistical community, together with a diverse group of stakeholders, to engage, interact, share and discuss appropriate and applicable science, methodologies and practices pertaining to national circumstances and experiences, and to prioritize issues and actions to collect, collate and integrate the data needed to keep the promise to leave no one behind. This knowledge and experiences were shared and discussed through 25 presentations including from national geospatial information authorities, national statistical offices, the United Nations system, including SDGs custodian agencies, international organizations, national space agencies, academic institutions and civil society.

23. The inclusion of a knowledge sharing and peer-to-peer learning and exchange event with national, regional and international participation within the construct of the Working Group's formal meeting was commended and considered to be helpful. The engagement and interactions with stakeholders and beneficiaries provided improved knowledge and understanding of circumstances, approaches and experiences that aided the Working Group in its deliberations and work.

III. Implementing the 2030 Agenda with geospatial information

24. The 2030 Agenda and its 17 SDGs are highly dependent on geospatial information and enabling technologies as the primary data and tools for relating people to their location and place, and to measure 'where' progress is, or is not, being made, particularly at 'disaggregated' sub-national and local levels. In this respect, the 2030 Agenda specifically demands the need for new data acquisition and integration approaches, including to exploit the contribution to be made by geospatial information and Earth observations to support the implementation of the SDGs, targets and global indicators. Goal 17, in the area of data, monitoring and accountability, requires that by 2020, we are able to "enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts".[15]

25. The Cape Town Global Action Plan for Sustainable Development Data, issued on 15 January 2017, recognizes the need to facilitate the application of modern technologies and new data sources to mainstream statistical activities to support the implementation of the 2030 Agenda, and tracking progress on the SDGs. It calls for the identification and removal of barriers to the use of new data sources, including registries and administrative data, geospatial information systems, and other innovative data sources. To this end, the Action Plan promotes the integration of modern geospatial information management systems within mainstream statistical production programmes, highlighting synergies between the two systems. It also stresses the need to build confidence, trust and capacity through coordinated measures, legal reforms, and better funding, as well as through the development of principles

[15] A/RES/70/1, para 17.18

and guidelines, to support the integration of data from traditional and non-traditional data sources.

26. Geospatial information provides the digital connection between a place, its people and their activities, and is used to illustrate what is happening – where, how and why. It is also used to model and portray the impact of the past, the present and likely future scenarios. [16] Entering the fourth year of national to global reporting on the SDGs, countries are realising how difficult it is to translate the shared vision of the 2030 Agenda into national development plans and strategies that ensure that no one is left behind.

27. There is an ongoing need to respond to the call by the Secretary-General for specific actions towards "strengthening collection, access and effective use of data for the Goals; and harnessing science, technology and innovation with a greater focus on digital transformation for sustainable development". [17] The Sustainable Development Goals Report 2019 reiterated that "new data sources and technologies for data collection and for the integration of various data sources will need to be explored, including through partnerships with civil society, the private sector and academia. The integration of geospatial information and statistical data will be particularly important for the production of several indicators."[18]

28. It is observed that the Committee of Experts is looking at a data-puzzle of opportunities and limitations to the application of geospatial information for sustainable development, where it will be difficult to apply a single approach that fits all data situations and national circumstances in countries. The way in which the indicators will be produced will, to some extent, depend on the individual countries' data availability, technologies, priorities, capacities, available data infrastructures and institutional arrangements.

29. This data-puzzle of opportunities and limitations can be addressed by ensuring that "geospatial information and location enablement is able to be recognized and underpin the SDGs at national levels through the Integrated Geospatial Information Framework as a fundamental and enabling methodological framework and infrastructure for creating greater social, economic and environmental understanding, evidenced based decision making, design and delivery of projects and services, and implementing and achieving the 2030 Agenda for Sustainable Development"[19]. While to be discussed as a separate agenda item at this ninth session, there is already recognition of the Framework's ability to elevate the message, perspectives and value proposition for growing political knowledge and understanding in integrated geospatial information management.

30. Implementing the 2030 Agenda for Sustainable Development is a principal focus of the Committee of Experts, as evidenced by the themes, aims and objectives of its activities including the inaugural World Geospatial Information Congress, its High-level Forums, and the international forums, symposiums, seminars and workshops over the past four years.

31. In October this year, the Secretariat and the Ministry of Natural Resources of China plan to convene an International Workshop on United Nations Global Geospatial Information Management with a focus on "federating information for sustainable development – integrative technologies and processes". The Workshop aims to improve knowledge and understanding on the Integrated Geospatial Information Framework, the importance of 'nationally' integrated geospatial information management, and the vital and integrative role of geospatial information, and where participants are expected to work through processes to develop a system to federate information as a nexus for delivering evidence-based information for the implementation of national strategic and development priorities and for

16 https://unstats.un.org/sdgs/files/meetings/iaeg-sdgs-meeting-09/WG%20Geosptial%20Information-A%20Review%20of%20its%20first%203%20years.pdf.

17 E/2019/68 (2019 session of the high-level pollical forum on sustainable development)

18 Sustainable Development Goals Report 2019, page 58

19 http://ggim.un.org/unwgic/documents/Moganshan_Declaration_Draft_Final.pdf

sustainable development. The Secretariat and the Ministry also plan to convene the Deqing International Forum on United Nations Global Geospatial Information Management with the theme “Data Ecosystems for Sustainable Development” in October 2019 after the workshop.

32. To ensure that the contribution of the global geospatial information community to the implementation of the 2030 Agenda remains rigorous and relevant, expert advice and guidance in the application of geospatial information for the production of indicators, and articulating the role of geospatial information, Earth observations and other data in national case studies and best practices, including for disaggregation by geographic location, is required. For this, considerations needed include: i) what are the principles and guides? ii) what are the data supply chain requirements and solutions for certain indicators? iii) how do we apply geospatial information and Earth observations as part of the official statistics process for the SDGs? and iv) how do we harness the knowledge, experience and expertise needed? This will require an integrative paradigm, integrating geospatial information, statistics and other data, integrating systems leveraging technologies and the approach in federating information for sustainable development, and for this the need to support and collaborate with the national statistical system and custodian agencies in the production of indicators.

33. The Committee of Experts may wish to consider its modalities and mechanisms to ensure that the contribution of the global geospatial information community to the implementation of the 2030 Agenda remains rigorous and relevant. The programme of work and activities of the Committee are tightly coupled with the ambitions of the 2030 Agenda and implementation of the SDGs, and as mandated by ECOSOC in 2016 and referenced in paragraph 3 of this report. As noted by the Secretary-General’s message at the opening of the first United Nations World Geospatial Information Congress in November 2018 in Deqing, China, our “dedication, expertise and guidance - in geospatial data, methods, frameworks, tools, and platforms - is urgently needed. The data needs for the SDGs are great, and time is not on our side. Reliable, timely, accessible and disaggregated geospatial information must be brought to bear to measure progress, inform decision-making and ensure effective and inclusive national and sub-national programs that will chart the path towards the 'Geospatial Way to a Better World', to assist in the implementation of the SDGs, and transform our world for the better.”

IV. Points for discussion

34. The Committee of Experts is invited to:

(a) Take note of the present report and express its views on the activities and progress in advancing the role of geospatial information for sustainable development;

(b) Express its views on the current development with the Working Group on Geospatial Information of the Inter-Agency and Expert Group on Sustainable Development Goals Indicators, and provide guidance on the way forward; and

(c) Provide any further guidance regarding the way forward to ensure that the contribution of the global geospatial information community to the implementation of the 2030 Agenda remains rigorous and relevant.